PSG Institute of Technology and Applied Research
Department of Computer Science and Engineering

Arduino Project Review– 2023

Automatic traffic clearance

Team members

715522106033 Nithya Shree. V

715522106013 Deepthi Sri. R

715522106055 Vimala Varshini. C. P

Outline of the Presentation

- Introduction and Background (1or 2 slides)
- Problem Statement (1slide)
- Objectives (3-4 bullets, 1 slide)
- Block Diagram / Circuit Diagram of the Proposed Solution (1or 2 slides)
- Details of the components used (1 or 2 Slides)
- Roles and Responsibilities of team members (1 slide)
- Conclusion (1 slide)
- References

Introduction and Background:

This idea proposes the smart traffic system by clearing jams for emergency vehicles like ambulances by providing green signals on the lane during heavy traffic. This method involves using Arduino UNO along with the LM393

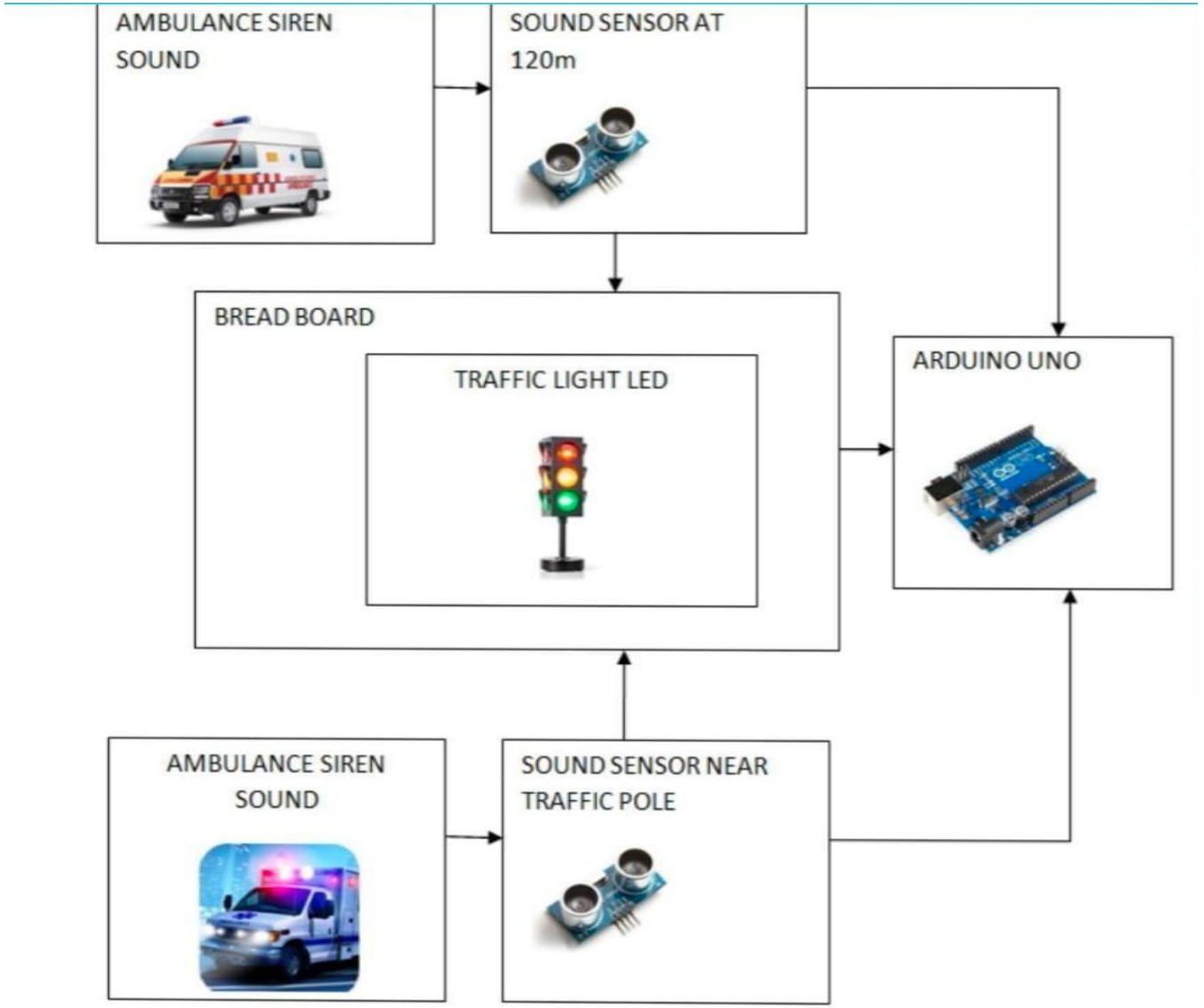
Problem statement

The increase in human population is an important cause for the drastic increase in the usage of vehicles for transportation, which ultimately started being a reason for the hectic traffic jams in many of the densely populated cities. This congestion causes a delay for the transportation, which increases waiting time. When it comes to overcrowded cities these waiting times become comparatively higher, such higher waiting time for emergency vehicles causes a great impact.

Objectives

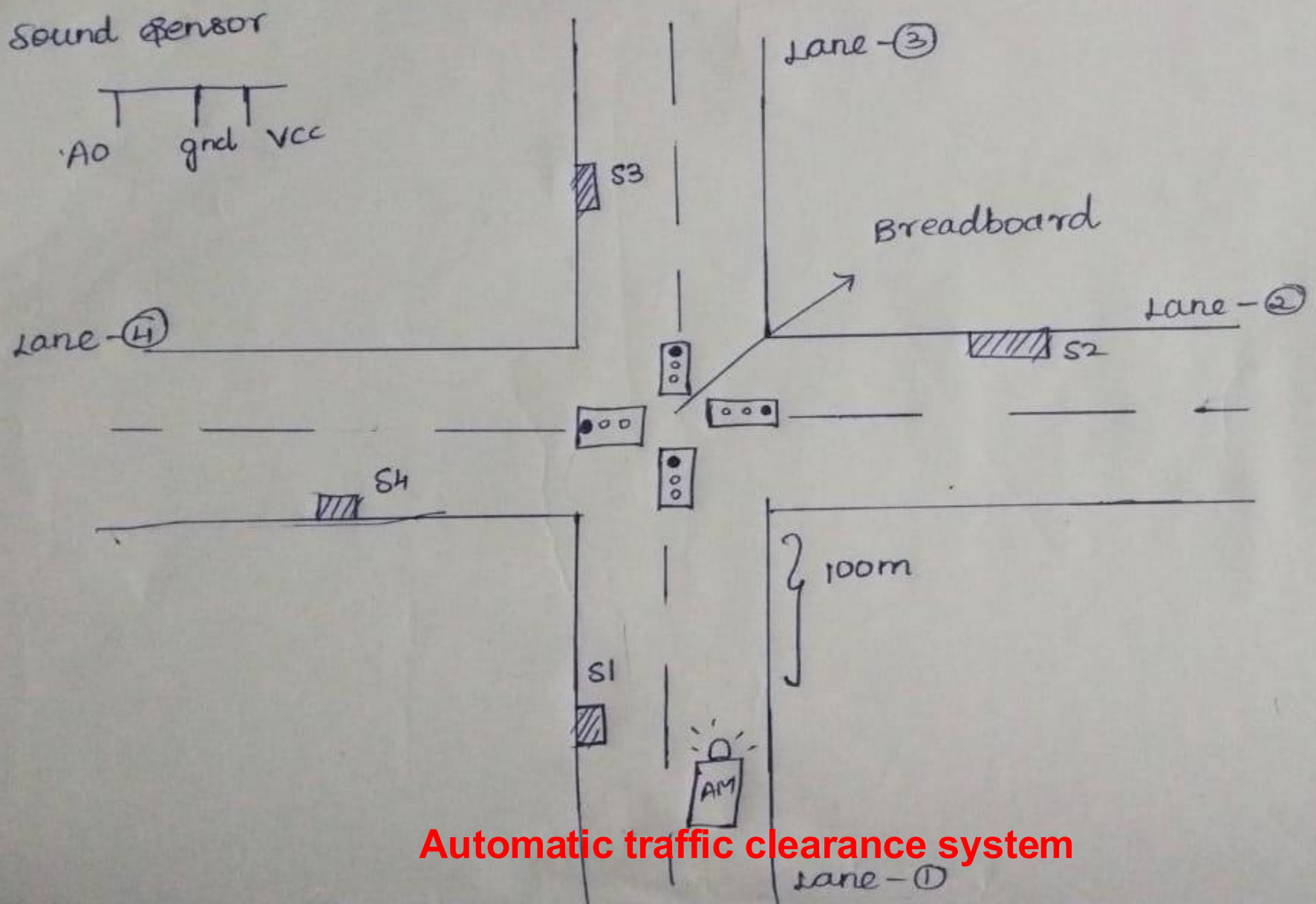
1. Traffic control has as its principal objective to manage the movement of people and goods as efficiently and safely as possible.
2. Reduce everyday congestion markedly, by smoothing traffic flows and prioritizing traffic in response to demand in real time.
3. To provide a better way to avoid traffic during the passage of emergency vehicles

Block diagram



Automatic traffic clearance system

SMART TRAFFIC CONTROL FOR EMERGENCY VEHICLES FOUR INTERSECTION



Sound sensor - ④

3 traffic lights/lane

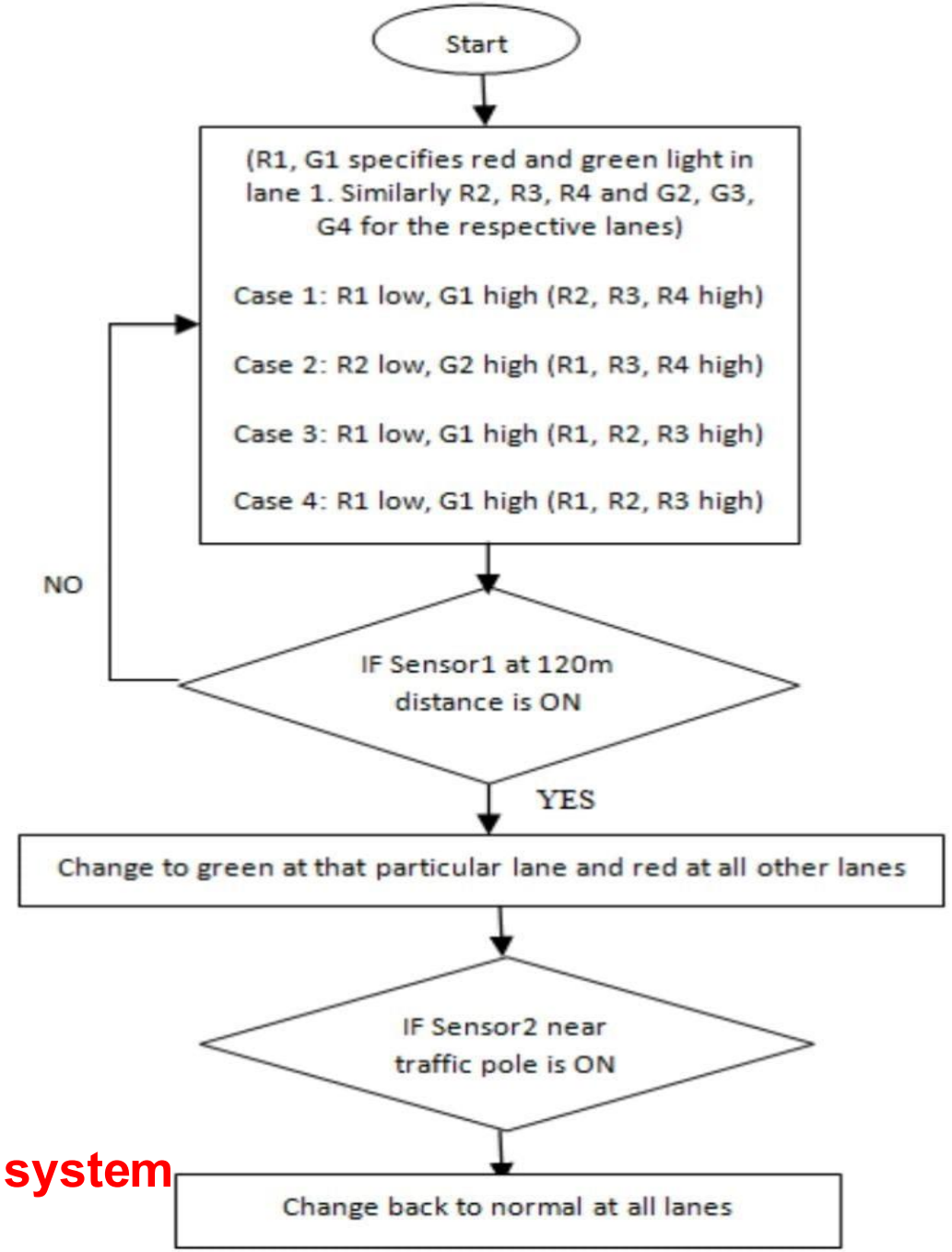
↓

4 × 3 = 12

12 - Digital pins

4 - Analog pins

Ambulance - 120 dB at a distance 2.0 m


Start
(R1, G1 specifies red and green light in lane 1. Similarly R2, R3, R4 and G2, G3, G4 for the respective lanes)
Case 1: R1 low, G1 high (R2, R3, R4 high)
Case 2: R2 low, G2 high (R1, R3, R4 high)
Case 3: R1 low, G1 high (R1, R2, R3 high)
Case 4: R1 low, G1 high (R1, R2, R3 high)
NO
IF Sensor1 at 120m distance is ON
YES
Change to green at that particular lane and red at all other lanes
IF Sensor2 near traffic pole is ON
Change back to normal at all lanes

Details of the components used

Sound sensor- to detect ambulance siren sound

Buzzer- To produce ambulance sound

LEDs- For traffic signals

Strip breadboards- For traffic poles

Roles and Responsibilities of team members

1)To make proper calibration for sound sensor.

2) Writing code to change the traffic light on detection of ambulance siren sound.

3)Making proper connections

4)To avoid the false detection of ambulance siren sound on other lane

5)To write code to blink the led(traffic light) at a right time.

6) Debugging errors

Conclusion

This method finds a solution for the existing problem, that is it avoids the

Waiting time for emergency vehicles in the traffic signals. This model serves as a better option when compared to the usage of other ambulance detecting methodologies,which are either expensive or not accurate in detecting the ambulance on the roads. Hence the utilization of the sound detectors is found to be more actuated since these siren sounds are used only during an emergency situation. The proposed system in the future may be improved and solves the existing problem.

References

References

Electronics for you

https://www.ijcrt.org › papers

www.irjet.net

Thank You!